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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,113	03/16/2004	Satoshi Seo	12732-220001 / US7048	9191

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EXAMINER	
GARRETT, DAWN L	
ART UNIT	**PAPER NUMBER**
1774	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/801,113	SEO ET AL.	
	Examiner	Art Unit	
	Dawn Garrett	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *5-8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 9-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action is responsive to the amendment filed December 21, 2006. Claims 1-4 were amended. Claims 25-28 have been newly added. Applicant previously elected the species of claim 4 which includes a host material according to formula (7) wherein an aryl group represents each of R1 to R3 and formula 8 wherein a lower alkyl group represents R1, R4, and R5 and a hydrogen atom represents each of R2 and R3. Claims 5-8 are withdrawn as non-elected. Claims 1-4 and 9-28 are under consideration.

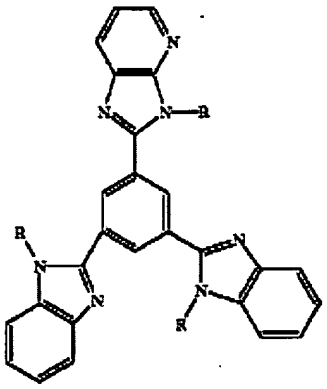
2. The new drawings filed December 21, 2006 are acknowledged and are approved.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

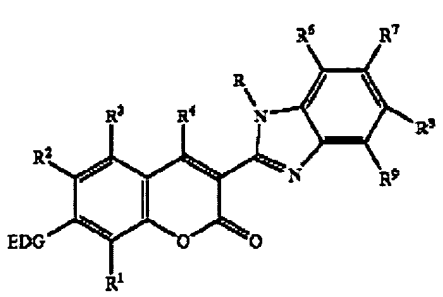
4. Claims 1-4 and 9-24 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al. (US 2002/0055014 A1) in view of Xie (US 2003/0215667 A1). Okada et al. discloses light-emitting devices comprising a pair of electrodes formed on a substrate, and organic compound layers including one with a heterocyclic compound (see abstract). Okada et al. discloses as the heterocyclic compound the following compound with regard to the present "host compound":



246 (R = phenyl)
247 (R = 3-methyl phenyl)
248 (R = 4-tert-butylphenyl)
291 (R = 2-methylphenyl)
294 (R = 8-quinolyl)

(see page 70, second column).

Okada et al. further teaches the light emitting layer may comprise coumarin derivatives (see par. 223) with regard to the independent claims and claim 17. Okada et al. fails to teach specifically the coumarin derivative species under consideration. Xie teaches in analogous art coumarin derivatives useful as dopants in the luminescent layer of an electroluminescent device (see abstract). Xie teaches the species of coumarin derivative currently under consideration:



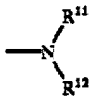
II

[0026] Wherein R is hydrogen, alkyl of from 1-24 carbon atoms, aryl, hereoaryl or carbocyclic systems;

[0027] R^1, R^2, R, R^4, R^5, R^6, R^7, R^8 and R^9 are individually alkyl of from 1 to 20 carbon atoms, aryl or carbocyclic systems;

[0028] EDG is hydrogen, alkyl group of from 1-24 carbon atoms, aryl group of from 5-24 carbon atoms, or electron donating groups, more typically are:

$-OR^{10}$



[0029] Wherein:R^{10}, R^{11} and R^{12} are individually alkyl of from 1 to 20 carbon atoms, aryl or carbocyclic systems; R^{11} and R^1, R^{11} and R^{12}, and R^{12} and R^2 taken together can form ring systems, such as piperidine, julolidine, or tetramethyl-julolidine.

(see page 2, par. 25-29).

It would have been obvious to one of ordinary skill in the art to have selected the coumarin derivative according to Xie for the Okada et al. device, because Okada et al. teaches coumarin derivatives may be incorporated into the light emitting layer. With regard to claim 9, Okada et al. teaches devices are used for displays and displays are notoriously well know to be part of image reproduction devices, goggle type displays, cameras and cellular phones (see par. 5). With regard to claims 10 and 11, the positive electrode (anode) may be formed of a number of materials including indium tin oxide (see par. 218). With regard to claims 12-14, the negative electrode (cathode) may be formed of alkali metals and fluorides of Li among other materials (see par. 221). The thickness of the negative electrode (cathode) and positive electrode (anode)

may be 10nm with regard to claim 15 (see par. 218 and 222). ITO (indium tin oxide) is particularly preferred for its transparency property per claim 16 (see par. 218). An electron transporting layer may be included per claims 18 and 23 (see par. 230). A hole injecting layer may be included per claims 19 and 24 (see par. 227). With regard to claim 20, the electron-injecting and the electron transporting layer are taught as having the function of blocking holes (see par. 230, fifth line of paragraph).

5. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al. (US 2002/0055014 A1) in view of Xie (US 2003/0215667 A1) and Kawami et al. (US 5,929,561). Okada and Xie are relied upon as set forth above, but fail to mention specifically that the light emitting devices may be used as pixels for a display device. Kawami et al. teaches in analogous art it is well known that a electroluminescent element may be incorporated as pixels in various display devices (see col. 1, lines 14-29). It would have been obvious for one of ordinary skill in the art at the time of the invention to have incorporated the devices rendered obvious by Okada in view of Xie as a pixel portion in a display, because Kawami et al. teaches it is well known that devices are used as pixels in various displays.

Response to Arguments

6. Applicant's arguments filed December 21, 2006 have been fully considered but they are not persuasive.

Applicant argues Okada fails to teach the coumarin derivatives recited by the claims and the secondary reference Xie fails to teach the host material. The examiner submits that Okada clearly teaches the required host material and coumarin derivatives. Xie is relied upon to teach the specific coumarin derivative species as useful as dopant in the luminescent layer of an

electroluminescent device. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant appears to argue Okada teaches too many different light emitting materials in order to select coumarin derivatives from the group. The examiner submits Okada clearly teaches coumarin derivatives and applicant has provided no data showing unexpectedly improved results using the specific coumarin derivatives over any other non-claimed coumarin derivatives or other light emitting materials listed by Okada. In the absence of unexpected results, the rejections of record are respectfully maintained.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dawn Garrett
Primary Examiner
Art Unit 1774